

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A base station implementing physical layer automatic repeat request, including a transmitter and a receiver, the base station for receiving data from a higher layer ARQ mechanism, the base station comprising:

a physical layer transmitter for receiving the data from the higher layer ARQ mechanism, formatting the received data into packets, each packet having a particular encoding/data modulation, transmitting the packets, and retransmitting packets in response to failure to receive a corresponding acknowledgment for a given packet;

an acknowledgment receiver for receiving the corresponding acknowledgment;

an adaptive modulation and coding controller for collecting retransmission statistics and adjusting the particular data encoding/modulation using the collected statistics;

a physical layer receiver for demodulating received packets;

a combiner/decoder for buffering, decoding and detecting packet errors;

and

an acknowledgment generator for generating an acknowledgment for each packet if that packet has an acceptable error rate.

2. (Original) The base station of claim 1 wherein the particular encoding/data modulation is forward error correction (FEC).

3. (Original) The base station of claim 2 wherein the packets are transmitted using an orthogonal frequency division multiple access (OFDMA) air interface and the FEC encoding/data modulation adjusting is performed in addition to selective nulling of subchannels in an OFDMA set.

4. (Original) The base station of claim 1 wherein the packets are transmitted using a single carrier having a frequency domain equalization (SC-FDE) air interface.

5. (Original) The base station of claim 1 whereby the base station uses a code division multiple access (CDMA) air interface and wherein the acknowledgments are transmitted on a fast feedback channel.

6. (Original) The base station of claim 1 whereby the acknowledgment generator transmits a negative acknowledgment if any packet has an unacceptable error rate.

7. (Currently amended) Physical automatic request repeat apparatus employed by a base station, the physical automatic request repeat mechanism for receiving data from a higher layer ARQ mechanism, the physical automatic repeat apparatus comprising:

a transmitter having:

means for receiving the data from the higher layer ARQ mechanism;

means for formatting the received data into packets for transmission,
each packet having a particular encoding/data modulation;

means for transmitting the packets;

means for retransmitting a packet, if an acknowledgment for that
packet is not received;

means for collecting retransmission statistics; and

means for adjusting each particular data modulation using the
collected retransmission statistics; and

a receiver having:

means for receiving packets;

means for decoding and error checking each received packet; and

means for generating an acknowledgment at the physical layer if that
received packet has an acceptable error rate.

8. (Original) The base station apparatus of claim 7 wherein the particular encoding/data modulation is forward error correction (FEC).

9. (Original) The base station apparatus of claim 7 wherein the packets are transmitted using an orthogonal frequency division multiple access (OFDMA) air interface and the FEC encoding/data modulation adjusting is performed in addition to selective nulling of subchannels in an OFDMA set.

10. (Original) The base station apparatus of claim 7 wherein the packets are transmitted using a single carrier having frequency domain equalization (SC-FDE) air interface.

11. (Original) The base station apparatus of claim 7 wherein the acknowledgments are transmitted using a code division multiple access (CDMA) air interface on a fast feedback channel.

12. (Original) The base station apparatus of claim 7 whereby said whereby said means for generating generates a negative acknowledgment if a packet has an unacceptable error rate.

13-23. (Canceled).

24. (New) The base station of claim 1 wherein a physical layer ARQ mechanism comprising the physical layer transmitter and the acknowledgement receiver is transparent to the higher layer ARQ mechanism.

25. (New) The base station apparatus of claim 7 wherein a physical layer ARQ mechanism comprising the means for retransmitting is transparent to the higher layer ARQ mechanism.